

plate 2 to 4. (This large form of *Neomenia* from the Barents Sea, measuring from 105 to 148 millim., has afforded the author the opportunity of writing a very exhaustive treatise on its anatomy, in which he acknowledges the generous assistance of Dr. Spengel, Prof. v. Graff, and Ray Lankester).

Revue internationale des Sciences biologiques, December 15, 1881, contains—Elie Reclus, ethnographic studies.—M. Thulié, on the buttock-hump and apron of the Bochimán women.—M. Wagner, on the formation of species by segregation.—Dr. Graham, on the chemistry of panification.

January 15, 1882.—Prof. P. Budin, on a very peculiar disposition of the ova in twin pregnancies.—Moritz Wagner, on the formation of species by segregation (end).—A. Hovelacque, on Buffon as an anthropologist.—L. Dollo, on the toothed birds of the Far West; on *Archæopteryx*; and on the affinities of the birds.—M. Barral, on the application of electricity to agriculture.

SOCIETIES AND ACADEMIES

LONDON

Linnean Society, February 2.—Chas. B. Clarke, M.A., vice-president, in the chair.—The Rev. B. Scortechini and Mr. J. Marshall were elected Fellows of the Society.—Mr. Thos. Christy exhibited various vegetable fibres and the manufactured pulp obtained therefrom by Mr. C. Ekman's process, whereby excellent paper can be made quickly and economically from all sorts of coarse plant fibre.—An extract of a letter from Mr. Thos. Edward, A.L.S., of Banff, was read and a fragment shown of a supposed rare marine animal got by a fisherman in deep water. Dr. Murie identified it as belonging to the Nemertean worms, viz. *Cerebratulus angulatus*, a marine form found chiefly in the northern parts of the British coasts, but nevertheless seldom seen alive by naturalists. Mr. E. M. Holmes exhibited specimens of a new blistering insect from Madagascar, belonging to the genus *Epicauta*, and allied to *E. ruficollis*.—Mr. Holmes afterwards drew attention to specimens of *Cinchona* bark cultivated in Bolivia, belonging to the "*Verde*" and "*Morada*" varieties of *Calisaya*, which hitherto have not been cultivated in the Colonies, but notwithstanding deserve notice on account of the large yield of bark and good percentage of quinine; they therefore pay the Bolivian planters better than the well-known *Ledgeriana calisaya*.—Mr. J. R. Jackson exhibited a specimen of the Australian native "*Pituri*" bag, their constant companion and solace in travel. Formerly the leaf of the plant was only known, but Baron von Mueller has lately shown from other evidence that it is derived from the *Duboisia Hopwoodii*.—A note by Mr. Otto Tepper on the medical use of *Melaleuca uncinata*, R. Br., was read. He says the dried leaves chewed and the saliva swallowed are a specific in cases of colds, sore throats, and bronchitis, the flavour being aromatic.—A communication from Major-General Benson was read; this referred to Dr. Cobbold's use of the name *Fasciola Jacksoni* for certain flukes obtained from the elephant, the same having been described by Major-Gen. Benson in the *Rangoon Times*, 1867. Dr. Cobbold thereupon explained that the initials of the author having alone been appended to the article in question, it consequently had received less attention than it would otherwise have had. To Major-Gen. Benson certainly belongs the credit of having first directed attention to the elephant mortality from the said species of fluke, though the worm was first discovered by Jackson twenty years before the Rangoon letter appeared, viz. in 1847.—There followed a paper by Mr. Robert Fitzgerald, botanical sketch in connection with the geological features of New South Wales.—Afterwards a paper was read, on animal intelligence, by Mr. Otto Tepper. He described instances under his own observation, of cats regularly unfastening the latch of a door to obtain entrance, and in the case of certain species of ants, their mode of communicating with each other, &c., therefrom adducing a power of reasoning usually attributed to instinct.

Mathematical Society, February 9.—S. Roberts, F.R.S. president, in the chair.—Mr. J. H. Tompson, Science Master in the Auckland College, New Zealand, was elected a member, and Mrs. Bryant was admitted into the Society.—Mr. Tucker read an abstract of a paper by H. M. Jeffery, F.R.S., on plane curves of the fourth order with quadruple asymptotes.—The chairman communicated some results connected with Euler's formula connecting the sum of the divisors of a number with the pentagonal numbers, and remarked that the formula really

expressed the equality of the sum of the divisors to the sum of the m th powers of the roots of a certain equation.—Mr. J. Hammond and Mr. Tucker also made short communications.

Chemical Society, February 2.—Prof. A. W. Williamson in the chair.—Dr. Odling delivered a lecture on the unit weight and mode of constitution of compounds. The lecturer had originally proposed to bring forward three questions for discussion and consideration—(1) Is there any satisfactory evidence deducible of the existence of two distinct forms of chemical combination, atomic and molecular; (2) Is the determination of the vapour density of a body alone sufficient to determine the weight of the original molecule; (3) In the case of an element forming two or more distinct series of compounds, e.g. ferrous and ferric salts is the transition from one series to another necessarily connected with the subtraction of an even number of hydrogenoid atoms. The lecturer limited himself to a great extent to the first question, touching incidentally on the third, and omitting the second altogether. A large portion of the lecture was occupied with a consideration of the valency or acidity of the elements and the effect thereon of other elements in the molecule. From various considerations the lecturer concluded that there is no evidence founded on facts to show that there is any difference between atomic and so-called molecular combination, but that the one passes imperceptibly into the other. There is also no necessary connection between the valency of an element and its chemical condition in forming two series of compounds: thus tin in the stannous compounds is not necessarily a dyad. The lecturer also devoted some time to the consideration of chemical formulæ, and especially to the use of condensed or contracted formulæ.

Geological Society, January 25.—Mr. R. Etheridge, F.R.S., president, in the chair.—John Blaikie, M. Ernest Jobling, and the Rev. Stanley A. Pelly, B.A., were balloted for as Fellows of the Society.—The following communications were read:—On the fossil fish-remains from the Armagh limestone in the collection of the Earl of Enniskillen, by James W. Davis, F.G.S. The author described in this paper a large collection of fossil fish-remains at present at Florence Court, Enniskillen, but which will soon be removed to the new Natural History Museum in the Cromwell Road. The collection comprises, besides specimens collected by the Earl of Enniskillen from the Carboniferous limestone of Armagh, a large series acquired from the famous collection of the late Capt. Jones, M.P., the remaining portion of which is in the Geological Museum of Cambridge. Several genera and species were described by Prof. Agassiz in his "*Recherches sur les Poissons Fossiles*" (1833-43), and again referred to by J. E. Portlock, F.R.S., in his "*Report of the Geology of Londonderry and parts of Tyrone and Fermanagh*" (1843). In 1854 Prof. M'Coy described many new genera and species in his work on the "*British Palæozoic Rocks and Fossils*," principally derived from a study of the portion of Capt. Jones's collection deposited in the Cambridge Museum. Prof. Agassiz paid a visit to Florence Court in 1858, and appended names to some of the fossil teeth in Lord Enniskillen's cabinets, intending to describe and figure the new forms, and to revise the whole of his former work. His death prevented this intention from being carried into effect. As far as possible the determinations of Prof. Agassiz have been adhered to in the present paper. The detached and isolated condition in which the remains are found renders any appreciation of the relationship of the teeth and spines, or even of the teeth only, to each other extremely uncertain and difficult. Some speculations as to the probable organisation and characteristics of the Carboniferous fishes which they represent, evolved during a long consideration of the specimens, have therefore been postponed to a future opportunity.—On an extinct Chelonian reptile (*Notochelys costata*, Owen) from Australia, by Prof. Owen, C.B., F.R.S. The fossil reptilian remains hitherto transmitted to the author from Australia have been limited to parts of the skeleton of *Megalanian prisca*, Ow. The present specimen, sent last year by Prof. Leversidge, is the first fossil Chelonian. The specimen was found in a formation at Blinder's River, Queensland, of which the nature and age are not stated. It is, however, petrified. The fossil consists of the anterior portion of the carapace and of the plastron, brought into unnaturally close contact by posthumous pressure. A minute description of the several parts was given, from which the author concluded that though the characters of the carapace might be interpreted as identifying the Chelonian with a true turtle (*Chelone*), those of the plastron

show the well-marked distinctions of *Trionyx* and *Chelys*. On the whole, however, the modifications, especially of the carapace, show a nearer affinity to the marine turtles (*Chelone*) than the known Chelydrians exhibit, and indicate a more generalised type.—On the upper beds of the Fifeshire Coal-Measures, by the late E. W. Binney, F.R.S., and James W. Kirby.

Anthropological Institute, January 24.—Anniversary Meeting.—Major-General Pitt-Rivers, F.R.S., president, in the chair.—The following gentlemen were elected Officers and Council for the year 1882:—President, Major-General Pitt-Rivers, F.R.S.; Vice-Presidents: Hyde Clarke, John Evans, F.R.S., Prof. W. H. Flower, F.R.S., F. Galton, F.R.S., Dr. Allen Thomson, F.R.S., E. B. Tylor, F.R.S.; Director, F. W. Rudler, F.G.S.; Treasurer, F. G. H. Price, F.S.A.; Council: Lieut.-Col. H. H. Godwin Austen, F.R.S., J. Beddoe, F.R.S., S. E. B. Bouverie-Pusey, E. W. Brabrook, F.S.A., Prof. Geo. Busk, F.R.S., C. H. E. Carmichael, M.A., W. Boyd Dawkins, F.R.S., W. L. Distant, A. W. Franks, F.R.S., Prof. Huxley, F.R.S., A. H. Keane, B.A., A. L. Lewis, Sir J. Lubbock, Bart., M.P., R. Biddulph Martin, M.P., J. E. Price, F.S.A., Lord Arthur Russell, M.P., Alfred Tylor, F.G.S., C. Staniland Wake, M. J. Walhouse, F.R.A.S., R. Worsley.—The president delivered his annual address, in which he reviewed the work of the past year.

Victoria Institute, February 5.—A paper by Mr. Callard, F.G.S., "On Breaks in the Continuity of Mammalian Life in Certain Geological Periods, Adverse to the Darwinian Hypothesis," was read. A discussion took place, in which Mr. J. E. Howard, F.R.S., Mr. D. Howard, F.C.S., Mr. S. R. Pattison, F.G.S., Mr. J. Mello, F.G.S., Mr. Charlesworth, F.G.S., and other geologists took part.

EDINBURGH

Royal Society, January 16.—Sir William Thomson, hon. vice-president, in the chair.—Mr. Patrick Geddes read an interesting paper on the nature and functions of the "yellow cells" of Radiolarians and Coelenterates, a full abstract of which we have given (p. 303).—Sir William Thomson, in a paper on the thermodynamic acceleration of the earth's rotation, drew attention to a solar action which tends to accelerate the earth's rotation, or more strictly to diminish the retardation effect of the tides. In ordinary tidal action the viscosity of the fluid, supposed distributed uniformly over the surface of the earth, has the effect of so shifting the line of crests as to make the couple due to the action of the tide-producing body upon the protuberant mass to act upon the earth in a direction contrary to that of the earth's rotation, and consequently to retard this rotation. From consideration of observed barometric changes at various stations all over the earth's surface, it is found that the well-known semi-diurnal barometric oscillation has its maxima, on an average, at 10 a.m. and at 10 p.m., and its minima at 4 p.m. and 4 a.m. This barometric oscillation must be due to the action of solar heat; though why the well-marked diurnal temperature oscillation with the superposed feeble semi-diurnal oscillation should result in a large semi-diurnal oscillation of pressure with a small diurnal oscillation superposed upon it, is not easy to explain, unless it be that the period of free oscillation of the atmosphere agrees more closely with the smaller period. However this may be, the existence of an atmospheric tide is proved by barometric observations, and the line of crests, *i.e.* the axis of maximum pressure, so lies with respect to the line joining the earth's centre and the sun that the couple due to the sun's attraction upon the ellipsoidal mass of air acts in the direction of the earth's rotation, and therefore accelerates it. The energy of this acceleration is of course derived from the sun's heat, and hence the appropriateness of the name *thermodynamic acceleration*. Its value, as estimated by Sir William Thomson, is about one-tenth of the tidal retardation.—Mr. Ferguson of Kinnundy communicated notes on a cyst discovered near Parkhill, Dyce, Aberdeenshire, in 1881, with a description by Dr. Fife Jamieson of the bones found in it. Besides the bones, which, for the most part were human, and indicated a fairly muscular man with well-developed skull and lower limbs, there was found in it a small urn (5½ inches high, 4½ inches wide), of graceful shape and elaborate carving. There were also present fragments of the bones of the fore-limbs of a boar and some charcoal—two rare features, the occurrence of the charcoal being apparently a survival of the Pagan custom of cremation.—Mr. T. Muir read a paper on permanent symmetrical functions, representing them by a notation similar to the determinant notation, and indicating some of their properties as well

as their relations to alternate numbers and determinants.—Prof. Tait communicated two optical notes, the first of which was a simple geometrical construction of the curve formed by rays of light from a straight slit falling on a screen after passing through a bull's-eye shaped irregularity on a window-pane, such as is frequently met with in old panes. Under favourable circumstances this curve may have a cusp, or even a loop. The second note dealt with the difficulty pointed out by Airy in his Tracts regarding the nature of common light, and showed how it can at once be got over by looking at things from the modern statistical point of view which has been so useful in its application to the kinetic theory of gases.

VIENNA

Imperial Academy of Sciences, January 19.—L. T. Fitzinger, in the chair.—The following papers were read:—A. Wassmuth, on electromotive bearing powers.—C. Koelter, on the action of an electro-magnet on different minerals, and its use for the mechanical separation of them.—H. Weidel, contributions to the knowledge of tetrahydrocinchoninic acid.—S. Exner, on the function of the musculus crumptonianus.—F. Woehner, results of the observations and studies made on the earthquake of Agram of November 9, 1880.

February 3.—L. T. Fitzinger in the chair.—The following papers were read:—A. Adam Riewicz, on the blood-vessels of the spinal cord of man, Part ii., the vessels of the surface of spinal cord.—S. Mayer, contributions to histological techniques.—S. Exner, on atrophy and innervation of the muscles of larynx.—F. Lippich, on polaristrometric methods.—Studies on caffeine and theobromine, Part 3, by R. Maly and F. Hinteregger; Part 4, by R. Maly and R. Andreasch.—T. M. Eder and G. Ulm, on the action of iodide of mercury on hyposulphite of sodium.—C. Langer, on the structure of bones.—V. Hochstetter, report on the researches made by Szombathy in the caves Lettenmayer-hoehle, near Kremsmünster (Lower Austria), Vipstex-hoehle, near Kirittein (Moravia), Lautscher-hoehle, near Littau.—F. Steindachner, contributions to the knowledge of the fishes of Africa, Part 2.—Description of a new species of Paraphoxinus from the Herzegovina, by the same.—T. Herzig, on the constitution of guaicol.—G. Goldschmidt and T. Herzig, on the action of the lime-salts of the three isomeric oxybenzoic and anisic acids at dry distillation.—G. Goldschmidt, a note on the occurrence of succinic acid in a bark-covering of *Morus alba*.—C. Senhofer, on naphthalene-tetra-sulphonic acid.—M. Margules, on the rotatory oscillations of liquid cylinders.

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